OAK ENGINEERS

BORING LOG: B115

Ground Elevation:	See Plan	Total Depth:	20.8 Feet	Logged By:	WAS
GW encountered:	8 Feet	Boring Diameter:	6 Inches	Date Drilled:	1/24/07 to 1/24/07
GW @ completion:	N.M. Feet	Well Stickup:	0	Driller:	Northern Test Boring

DEPTH	DESCRIPTION	REMARKS	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY (in.)	USCS SYMBOL	N	WELL
	Black to Dark Brown f-c SAND, some Gravel, trace to little Silt	dry to moist - ash and coal pieces		SS-1	22,18 7,3	24/18	SM	25	
		moist - ash and coal pieces		SS-2	2,2 1,2	24/8	SM	3	
5		moist - ash and coal pieces		SS-3	2,1 2,2	24/10	SM	3	
		moist to wet - brick pieces		SS-4	3,4 2,3	24/8	SM	6	
	(very loose to loose)	saturated - brick pieces		SS-5	2,2 1,1	24/6	SM	3	
10	Gray fibrous organic SILT, trace fine Sand	saturated - 5.8% organics, w = 52.9%		SS-6	2,2 2,7	24/8	SM-OL	4	
	(loose)								
	Gray f-c SAND, little Silt								
15		saturated, wood and timber pieces		SS-7	2,3 4,5	24/17	SM	7	
	(loose)								
	Gray CLAY, some Silt, plastic								
20	(soft)	saturated - rock pieces		SS-8	4, 50/3"	9/4	ML	>100	
	Auger and Split Spoon Refusal - End of Boring @ 20.8'								
25									
30									
35									

NOTES:
1. Drilling Method: Track mounted Diedrich D-50 with 2-1/4" i.d. Hollow Stem Auger (HSA)
2. Soil Sampling: 2-inch Split Spoon Sampler driven with 140 lb. hammer falling 30 inches (Auto-Hammer).

CLIENT: Northeast Civil Solutions

SITE: Village at Little Falls
7 to 13 Depot Street
South Windham, Maine

VIL_RESP01792

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OAK ENGINEERS

BORING LOG: B116

Ground Elevation:	See Plan	Total Depth:	3.8 Feet	Logged By:	WAS
GW encountered:	N.O. Feet	Boring Diameter:	6 Inches	Date Drilled:	1/24/07 to 1/24/07
GW @ completion:	N.M. Feet	Well Stickup:	0	Driller:	Northern Test Boring

DEPTH	DESCRIPTION	REMARKS	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY (in.)	USCS SYMBOL	N	WELL
	Dark Brown to Black f-c SAND, little SILT	dry to moist - brick pieces		SS-1	3,3 4,4	24/14	SM	7	
	(loose)	moist - brick pieces		SS-2	3,5 50/3"	15/5	SM	>100	
	Auger Refusal - End of Boring @ 3.8'								
5									
10									
15									
20									
25									
30									
35									

NOTES:
1. Drilling Method: Track mounted Diedrich D-50 with 2-1/4" i.d. Hollow Stem Auger (HSA)
2. Soil Sampling: 2-inch Split Spoon Sampler driven with 140 lb. hammer falling 30 inches (Auto-Hammer).

CLIENT:
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SITE:
Village at Little Falls
7 to 13 Depot Street
South Windham, Maine

VIL_RESP01793

Project No.: 064006

OAK ENGINEERS

BORING LOG: B117

Ground Elevation:	See Plan	Total Depth:	18 Feet	Logged By:	WAS
GW encountered:	9 Feet	Boring Diameter:	6 Inches	Date Drilled:	1/24/07 to 1/24/07
GW @ completion:	N.M. Feet	Well Stickup:	0	Driller:	Northern Test Boring

DEPTH	DESCRIPTION	REMARKS	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY (in.)	USCS SYMBOL	N	WELL
	Gray to Brown f-c SAND, some fine Gravel, some Silt	dry to moist		SS-1	17,15 5,3	24/18	SM	20	
		moist, with ash - w = 6.1%		SS-2	3,3 5,3	24/14	SM	8	
5		moist - ash		SS-3	9,11 7,23	24/8	SM	18	
		moist - ash		SS-4	5,6 5,5	24/7	SM	11	
		wet - ash		SS-5	3,4 4,4	24/3	SM	8	
10	becoming dark gray to black (loose to firm)	saturated - ash		SS-6	5,5 7,5	24/3	SM	12	
	Olive to Blue CLAY, some Silt, plastic								
15		moist - PP = 4.0 tsf		SS-7	9,11 17, 50/4"	20/17	CL	28	
	(stiff) Auger Refusal - End of Boring @ 18'								
20									
25									
30									
35									

NOTES:
1. Drilling Method: Track mounted Diedrich D-50 with 2-1/4" i.d. Hollow Stem Auger (HSA)
2. Soil Sampling: 2-inch Split Spoon Sampler driven with 140 lb. hammer falling 30 inches (Auto-Hammer).

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SITE:
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7 to 13 Depot Street
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VIL_RESP01794

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OAK ENGINEERS

BORING LOG: B118

Ground Elevation:	See Plan	Total Depth:	22 Feet	Logged By:	WAS
GW encountered:	11 Feet	Boring Diameter:	6 Inches	Date Drilled:	1/24/07 to 1/24/07
GW @ completion:	N.M. Feet	Well Stickup:	0	Driller:	Northern Test Boring

DEPTH	DESCRIPTION	REMARKS	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY (in.)	USCS SYMBOL	N	WELL
	Gray f-m SAND, little Silt, little Gravel	dry to moist		SS-1	15,12 9,11	24/11	SM	21	
	becoming Black m-c SAND	moist		SS-2	9,17 29,23	24/14	SM	46	
5		moist		SS-3	9,8 21, 50/4"	22/15	SM	29	
10	becoming some fine silt	moist - concrete pieces		SS-4	10,17 10,12	24/17	SM	27	
15		wet		SS-5	21,12 11,12	24/1	SM	23	
20	(firm to dense)			SS-6	12,21 27,31	24/0	SM	48	
	Auger Refusal - End of Boring @ 22'								
25									
30									
35									

NOTES:
1. Drilling Method: Track mounted Diedrich D-50 with 2-1/4" i.d. Hollow Stem Auger (HSA)
2. Soil Sampling: 2-inch Split Spoon Sampler driven with 140 lb. hammer falling 30 inches (Auto-Hammer).

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SITE:
Village at Little Falls
7 to 13 Depot Street
South Windham, Maine

VIL_RESP01795

Project No.: 064006

OAK ENGINEERS

BORING LOG: B119

Ground Elevation:	See Plan	Total Depth:	18 Feet	Logged By:	WAS
GW encountered:	11 Feet	Boring Diameter:	6 Inches	Date Drilled:	1/24/07 to 1/24/07
GW @ completion:	N.M. Feet	Well Stickup:	0	Driller:	Northern Test Boring

DEPTH	DESCRIPTION	REMARKS	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY (in.)	USCS SYMBOL	N	WELL
	Gray f-m SAND, little Silt, little Gravel	dry to moist		SS-1	12,16 18,11	24/14	SM	34	
	becoming Dark Brown to Black m-c SAND	moist		SS-2	8,5 20,25	24/12	SM	25	
5		moist		SS-3	7,17 21,14	24/18	SM	38	
10	(loose to firm)								
	Olive Silt, little Clay, trace fine Sand	wet		SS-4	10,15 15,18	24/17	ML	30	
15		wet		SS-5	19,13 11,12	24/13	ML	24	
	(medium to stiff)								
	Auger Refusal - End of Boring @ 18'								
20									
25									
30									
35									

NOTES:
1. Drilling Method: Track mounted Diedrich D-50 with 2-1/4" i.d. Hollow Stem Auger (HSA)
2. Soil Sampling: 2-inch Split Spoon Sampler driven with 140 lb. hammer falling 30 inches (Auto-Hammer).

CLIENT:
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SITE:
Village at Little Falls
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South Windham, Maine

VIL_RESP01796

Project No.: 064006 Page: 1

OAK ENGINEERS
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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP101		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
0-0.5			Topsoil, organics
0.5 - 3'			Dark Brown/Black f-m SAND, little Silt, cobbles
3 - 4.5'			Grayish Brown Clayey Silt
4.5'			Refusal on Bedrock @ 4.5' groundwater encountered at 3' bgs (adjacent to creek)

Pit Dimensions (Ft.) Length: 6 Width: 2.5 Depth: 4.5	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

VIL_RESP01797

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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP102		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
0-1.5'			Brown f-m SAND, little Silt, metal, cobbles
1.5 - 2.5'			Tan fine SAND and SILT, weathered rock fragments
2.5'			Refusal on Bedrock @ 2.5'
			no groundwater encountered

Pit Dimensions (Ft.) Length: 6 Width: 3 Depth: 2.5	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

VIL_RESP01798

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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP103		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
0 - 2'			Brown f-m SAND, little Silt, brick, ash
2 - 3.5'			Tan fine SAND and SILT, weathered rock fragments
3.5'			Refusal on Bedrock @ 3.5'
			no groundwater encountered

Pit Dimensions (Ft.) Length: 5.5 Width: 2.5 Depth: 3.5	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

VIL_RESP01799

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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP104		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
0 - 2'			Brown f-m SAND, little Silt, brick, metal
2 - 5'			Light Brown fine to medium SAND, some Silt
5'			Refusal on Bedrock @ 5'
			no groundwater encountered

Pit Dimensions (Ft.) Length: 6 Width: 3 Depth: 5	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

VIL_RESP01800

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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP105		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
0 - 0.5'			Brown f-m SAND, little Silt, brick, metal
0.5 - 1.5'			Brown fine to medium SAND, little Silt, cobbles
1.5- 5'			Gray-Brown fine to medium SAND, some silt, cobble sized rock fragments
5'			Refusal on Bedrock @ 5'
			no groundwater encountered

Pit Dimensions (Ft.) Length: 6 Width: 3 Depth: 5	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

VIL_RESP01801

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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP106		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
0 - 0.5'			forest mat, organics
0.5 - 2'			Brown fine to medium SAND, little Silt, cobbles, weathered rock fragments
2'			Refusal on Bedrock @ 2'
			no groundwater encountered

Pit Dimensions (Ft.) Length: 7 Width: 2.5 Depth: 2	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

VIL_RESP01802

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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP107		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
0 - 2'			Brown fine to medium SAND, little Silt, brick, metal, wood, rock fragments
2 - 5.5'			Gray to Brown f-m SAND, "stacked" rock backfill
5.5'			Refusal on Bedrock @ 5.5'
			groundwater seepage into excavation @ 5.5'

Pit Dimensions (Ft.) Length: 5.5 Width: 3 Depth: 5	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

VIL_RESP01803

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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP109		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
			Compacted fill, construction debris (metal and concrete)
			Large void to ~ 6' down along side foundation wall (block wall)
			excavation could not be advance beyond 6" with excavator due to frost and concrete slab

Pit Dimensions (Ft.) Length: n/a Width: n/a Depth: n/a	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

VIL_RESP01804

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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP110		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
0 - 1.5'			Brown fine to medium SAND, little Silt, cobbles and weathered rock
1.5'			Refusal on Bedrock @ 1.5'
			groundwater seepage into excavation @ 5.5'

Pit Dimensions (Ft.) Length: 6 Width: 2 Depth: 1.5	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

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TEST PIT LOG

Project: Geotechnical Investigation	Project No. 064006	
TEST PIT IDENTIFICATION: TP111		
Location: 12 Depot St, S. Windham, Maine	Ground Elevation:	
Client:	Datum: NA	
Contractor: ESN North Atlantic	Operator: Justin Berger	
Equipment: Bobcat 442 Tracked Excavator	Samples Collected ☐Yes ☒No	
Capacity/Reach: 1/2 cubic yard, 16'	Time Started:	Time Completed:
Weather: 35 F, cloudy		
Logged by ALB	Date: 2/21/2006	
Checked by:	Date:	

TEST PIT INFORMATION

Depth of Stratum Change (feet)	Sample No. and Type	Sample Depth (feet)	Soil Description
0 - 2'			Topsoil, Organics
0.5 - 4.5'			Dark Brown f-m SAND, trace Silt, brick, concrete, metal, ash
4.5 - 6.5'			Tan fine SAND and Silt, some weathered bedrock
6.5'			refusal on bedrock @ 6.5'
			No groundwater encountered

Pit Dimensions (Ft.) Length: 6.5 Width: 3 Depth: 6.5	Remarks: 1) Composite sample submitted to for analysis. 2) Test pit backfilled with native material.

VIL_RESP01806

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Soil Classification Terms

Grain Size		
Material	*Fraction*	*Sieve Size*
Boulders		12" +
Cobbles		3"–12"
Gravel	coarse	¾"–3"
	fine	No. 4 to ¾"
Sand	coarse	No. 10 to No. 4
	medium	No. 40 to No. 10
	fine	No. 200 to No. 40
Fines (Silt & Clay)		Passing No. 200

Identification of soil type Is made on the basis of an estimate of particle sizes, and in the case of fine-grained soils, also on basis of plasticity.

Coarse and Fine Grained Soils	
Descriptive Adjective	**Percentage Requirement*
Trace	1–10%
Little	10–20%
Some	20–35%
And	35–50%

When sampling gravelly soils with a standard split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter.
*Percentage measured by weight.

Standard Penetration Values (N) v. Relative Density & Consistency

GRANULAR		COHESIVE	
N	***Relative Density (%)***	***N***	***Consistency***
		<2	Very Soft
0–4	Very Loose (0-15)	2–4	Soft
4–10	Loose (15-35)	4–8	Medium
10–30	Firm (35-65)	8–15	Stiff
30–50	Dense (65-85)	15–30	Very Stiff
>50	Very Dense (>85)	>30	Hard

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Rock Classification Terms

Weathering Classification		
Grade	***Symbol***	***Diagnostic Features***
Fresh	**F**	No visible sign of decomposition or discoloration. Rings under hammer impact.
Slightly Weathered	**WS**	Slight discoloration inwards from open fracture, otherwise similar to F.
Moderately Weathered	**WM**	Discoloration throughout. Weaker mineral such as feldspar decomposed. Strength somewhat less than fresh rock but cores can not be broken by hand or scraped by knife.
Highly Weathered	**WH**	Most minerals somewhat decomposed. Specimens can be broken by hand with effort or shaved with knife. Core stones present in rock mass. Texture becoming distinct but fabric.
Completely Weathered	**WC**	Minerals decomposed to soil but fabric and structure preserved (Saprolite). Specimens easily crumbled or penetrated.
Residual Soil	**RS**	Advanced state of decomposition resulting in Plastic soils. Rock fabric and structure completely destroyed. Large volume change.

Rock Descriptors			
Term		Meaning	
Hardness	Soft	Scratched by fingernail	
	Medium Hard	Scratched easily by penknife	
	Hard	Scratched with difficulty by penknife	
	Very Hard	Cannot be scratched by penknife	
Jointing/ Fractures	Slight	2 to 6 ft. spacing	
	Moderate	8in. to 2 ft.	
	High	2 in. to 8 in.	
	Intense	< 2in.	
Bedding	Laminated	(< 1")	Natural Break in Rock Layers
	Thin Bedded	(1" - 4")	
	Bedded	(4" - 12")	
	Thick Bedded	(12" - 36")	
	Massive	(> 36")	

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Unified System Classification of Soils (ASTM D-2487)

Major Divisions			*Group Symbols*	*Typical Names*
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels 50% or more of coarse fraction retained on No. 4 sieve	Clean Gravels	**GW**	Well-graded gravels and gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines.
		Gravels w/ Fines	**GM**	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	Sands More than 50% coarse fraction passes No. 4 sieve	Clean Sands	**SW**	Well-graded sands and gravelly sands little or no fines.
			SP	Poorly graded sands and gravelly sands little or no fines.
		Sands w/ Fines	**SM**	Silty gravels, gravel-sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
Fine-Grained Soils 50% or more passes No. 200 sieve	Silts and Clays Liquid Limit 50% or less		**ML**	Inorganic silts, very fine sands, rock flour, silty or clayey sands.
			CL	Inorganic clays of low plasticity, gravelly clays, sandy clays, silty clays.
			OL	Organic silts and organic silty clays of low plasticity.
	Silts and Clays Liquid limit greater than 50%		**MH**	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity.
Highly Organic Soils			**Pt**	Peat, much and other highly organic soils

VIL_RESP01809

ATTACHMENT C

Laboratory Analysis

Geotechnical Investigation
Village at Little Falls, LLC
7 to 13 Depot Street
South Windham, Maine

AASHTO R18

GEOTECHNICAL CONSULTING
SITE INSPECTIONS
CONSTRUCTION MATERIALS TESTING

JOHN TURNER CONSULTING, INC.

REPORT OF ATTERBERG LIMITS TEST RESULTS

CLIENT:	**Oak Engineers Attn: Mr. Wally Shedd Brown's Wharf Newburyport, MA 01950**	**PROJECT:**	**South Windham, Maine 064006**
DATE:	**February 27, 2007**	**REPORT #:**	**07-010-005**
Date Received:	**01-30-07**	**Sampled By:**	**Client**
Method Used:	**ASTM D 4318**	**Tested By:**	**Jim Corti**

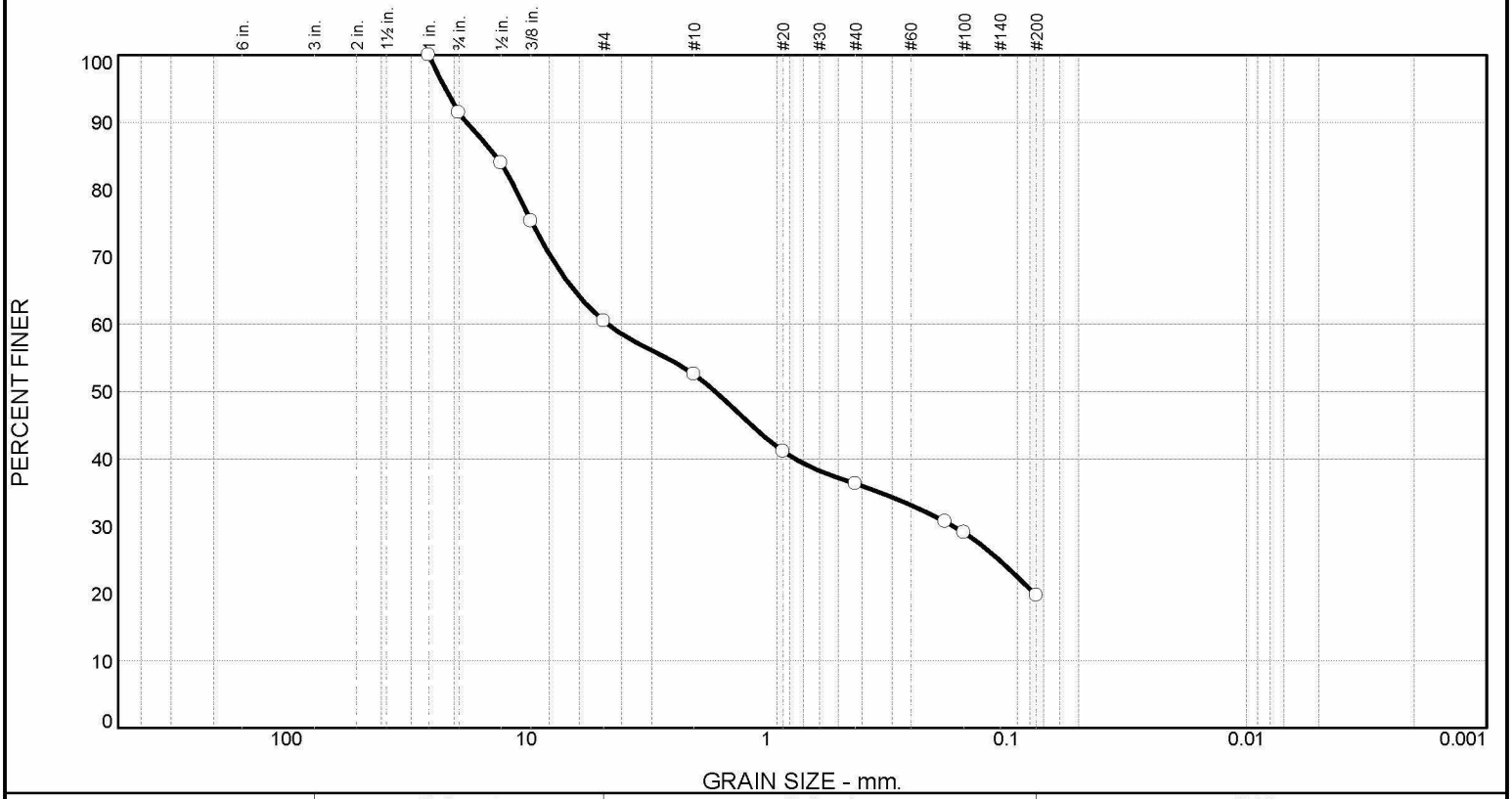
ID	Source	Depth (Feet)	Material Type	Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
001	B101 S4	6-8	Clay	27.2%	38	22	16
002	B102 S3	4-6	Silt, t-fs	26.2%	20	N/A	Non-Plastic
004	B105 S2	2-4	Silt, t-g, t-fs	24.7%	23	N/A	Non-Plastic
006	B114 S9	25-27	Clay	38.7%	33	20	13

TEAMWORK

19 Dover Street, Dover, NH, 03820
Phone: 603-749-1841 Fax: 603-516-6851

Other Office Locations:
Holly Street, Scarborough, ME

Particle Size Distribution Chart



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.6	30.9	7.9	16.3	16.6	19.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	91.4		
1/2	84.0		
3/8	75.3		
#4	60.5		
#10	52.6		
#20	41.1		
#40	36.3		
#80	30.7		
#100	29.1		
#200	19.7		

* (no specification provided)

Material Description

MEDIUM-FINE SAND & FINE GRAVEL, little silt and/or clay

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS= AASHTO=

Coefficients

D_{85}= 13.3033 D_{60}= 4.5722 D_{50}= 1.6283
D_{30}= 0.1659 D_{15}= D_{10}=
C_u= C_c=

Date Tested: 2-1-07 **Tested By:** Jim Corti

Remarks

Moisture Content: 12.5%

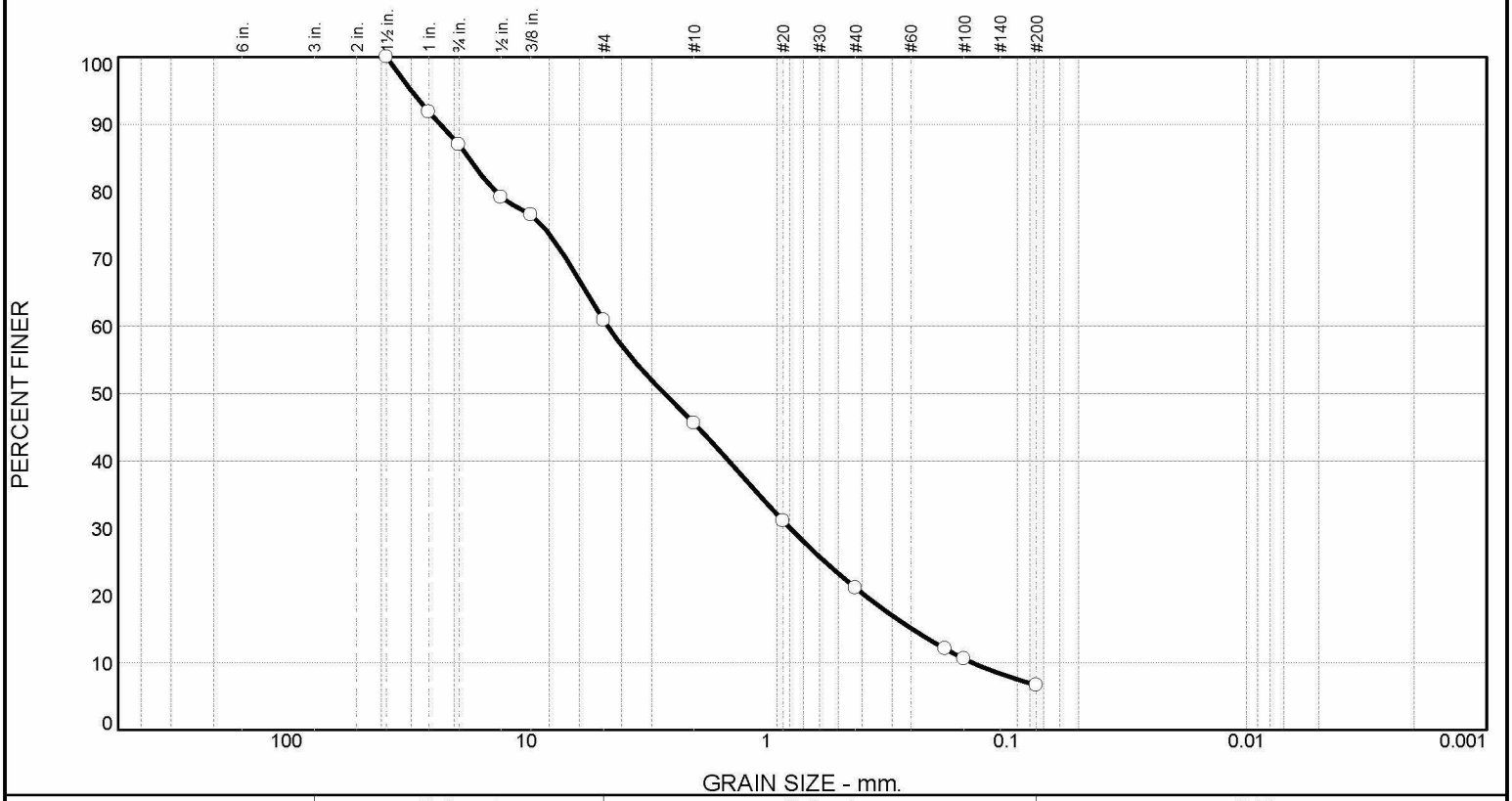
Sample No.: 003 **Source of Sample:** B 103 **Date Sampled:** 1-29-07
Location: S 5 **Elev./Depth:** 8.0-10.0 feet
Checked By: John Turner **Title:** President

JOHN TURNER
Dover, NH

Client: Oak Engineers
Project: South Windham, Maine
Proj. No. 064006
Project No: 07-010 **Figure** 001

VIL_RESP01812

Particle Size Distribution Chart



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.0	26.1	15.3	24.5	14.4	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	91.8		
3/4	87.0		
1/2	79.1		
3/8	76.5		
#4	60.9		
#10	45.6		
#20	31.1		
#40	21.1		
#80	12.1		
#100	10.6		
#200	6.7		

* (no specification provided)

Material Description

COARSE-MEDIUM-FINE SAND & COARSE-FINE GRAVEL, some silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS= AASHTO=

Coefficients

D_{85}= 17.3050 D_{60}= 4.5740 D_{50}= 2.6527
D_{30}= 0.7951 D_{15}= 0.2464 D_{10}= 0.1384
C_u= 33.05 C_c= 1.00

Date Tested: 2-1-07 **Tested By:** Jim Corti

Remarks

Moisture Content: 13.3%

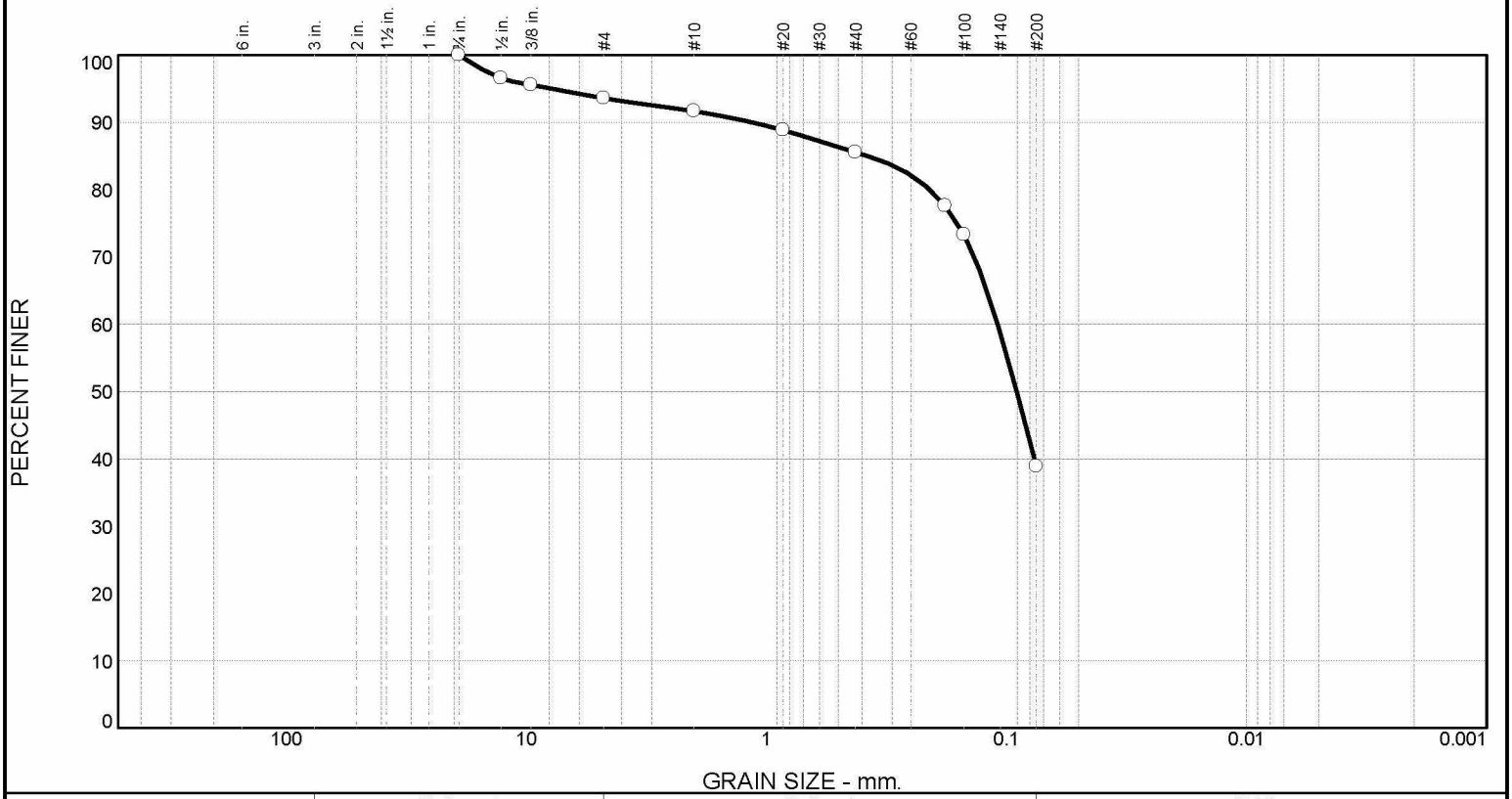
Sample No.: 005 **Source of Sample:** B 113 **Date Sampled:** 1-29-07
Location: S 2 **Elev./Depth:** 2.0-4.0 feet
Checked By: John Turner **Title:** President

JOHN TURNER
Dover, NH

Client: Oak Engineers
Project: South Windham, Maine
Proj. No. 064006
Project No: 07-010 **Figure** 002

VIL_RESP01813

Particle Size Distribution Chart



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.4	2.0	6.1	46.6	38.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	96.5		
3/8	95.5		
#4	93.6		
#10	91.6		
#20	88.8		
#40	85.5		
#80	77.6		
#100	73.3		
#200	38.9		

* (no specification provided)

Material Description

FINE SAND & SILT and/or CLAY, trace fine gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS= AASHTO=

Coefficients

D_{85}= 0.3805 D_{60}= 0.1088 D_{50}= 0.0906
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Date Tested: 2-1-07 **Tested By:** Jim Corti

Remarks

(w-d)/d Moisture Content: 52.9% Organic Content: 5.8% Ash Content: 94.2%

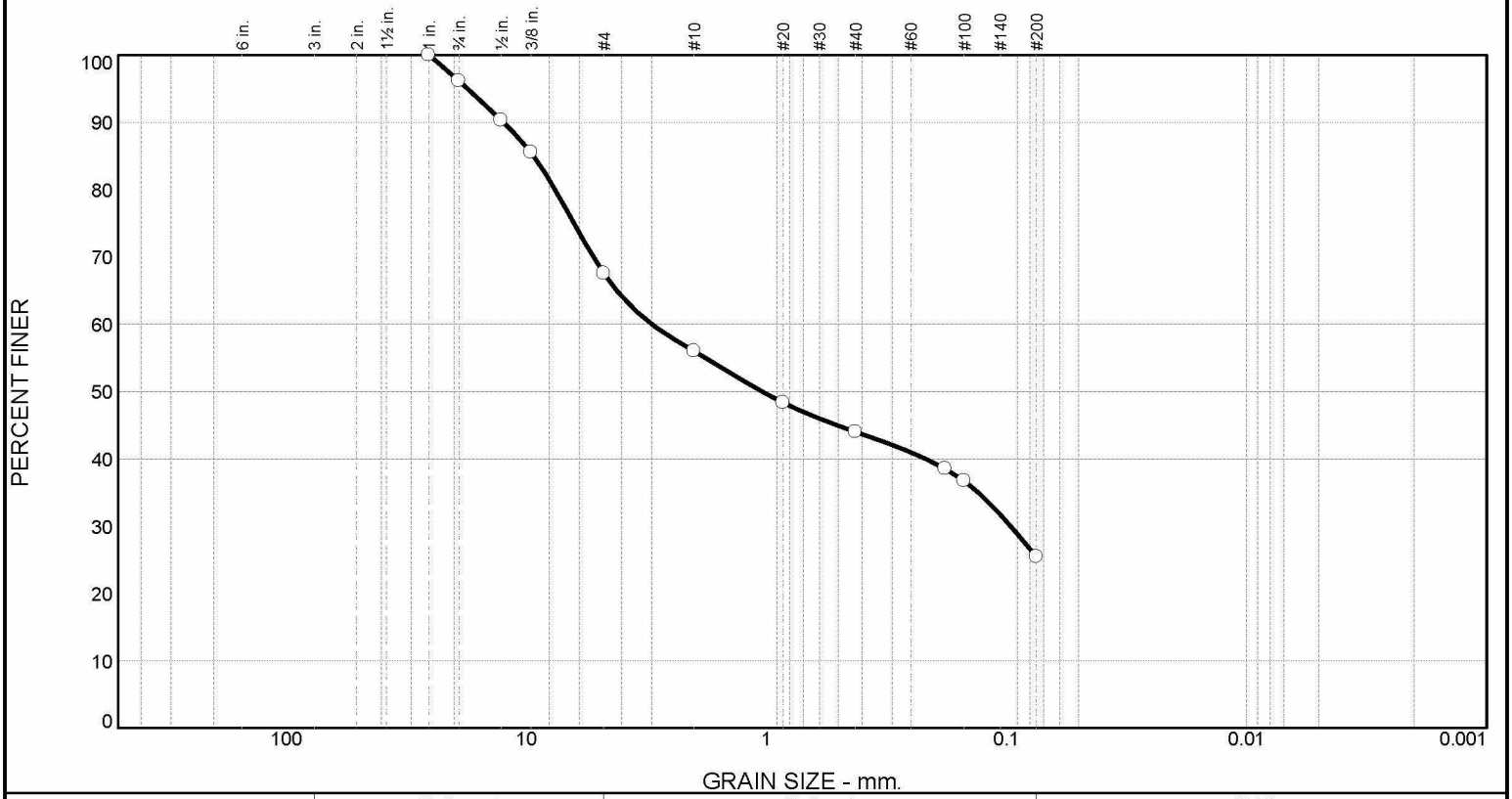
Sample No.: 007 **Source of Sample:** B 115 **Date Sampled:** 1-29-07
Location: S 6 **Elev./Depth:** 10.0-12.0 feet
Checked By: John Turner **Title:** President

JOHN TURNER
Dover, NH

Client: Oak Engineers
Project: South Windham, Maine
Proj. No. 064006
Project No: 07-010 **Figure** 003

VIL_RESP01814

Particle Size Distribution Chart



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.8	28.6	11.6	12.0	18.5	25.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	96.2		
1/2	90.3		
3/8	85.5		
#4	67.6		
#10	56.0		
#20	48.4		
#40	44.0		
#80	38.5		
#100	36.7		
#200	25.5		

* (no specification provided)

Material Description

COARSE-MEDIUM-FINE SAND, some fine gravel, some silt and/or clay

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS= AASHTO=

Coefficients

D_{85}= 9.2887 D_{60}= 2.9970 D_{50}= 1.0400
D_{30}= 0.0959 D_{15}= D_{10}=
C_u= C_c=

Date Tested: 2-1-07 **Tested By:** Jim Corti

Remarks

Moisture Content: 6.1%

Sample No.: 008 **Source of Sample:** B 117 **Date Sampled:** 1-29-07
Location: S 2 **Elev./Depth:** 2.0-4.0 feet
Checked By: John Turner **Title:** President

JOHN TURNER
Dover, NH

Client: Oak Engineers
Project: South Windham, Maine
Proj. No. 064006
Project No: 07-010 **Figure** 004

VIL_RESP01815

GeoTesting express

1145 Massachusetts Avenue
Boxborough, MA 01719
978 635 0424 Tel
978 635 0266 Fax

Transmittal

TO:

Mr. Wendell Shedd
Oak Engineers
Browns Wharf
Newburyport, MA 01950

DATE: 2/15/07	GTX NO: 7278
RE: Project No. 064006 – Windham, ME	
Client Project No. 064006	

COPIES	DATE	DESCRIPTION
	2/15/07	**February 2007 Laboratory Test Reports**

REMARKS:

SIGNED: Joe Tomei – Laboratory Manager

CC:

APPROVED BY: Gary Torosian – Director of Testing Services

VIL_RESP01816

GeoTesting express

a subsidiary of Geocomp Corporation

February 15, 2007

Mr. Wendell Shedd
Oak Engineers
Browns Wharf
Newburyport, MA 01950

Re: Project No. 064006 – Windham, ME (GTX-7278)

Dear Mr. Shedd:

Enclosed are the test results you requested for the above referenced project. GeoTesting Express, Inc. (GTX) received one Shelby Tube sample from you on February 1, 2007. This sample was labeled as follows:

B-114 (23-25 ft)

GTX performed the following tests on this sample:

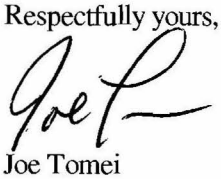
One- Point CU Triaxial (ASTM D 4767)

Incremental Consolidation (ASTM D 2435)

A copy of your test request is attached.

The results presented in this report apply only to the items tested. This report shall not be reproduced except in full, without written approval from GeoTesting Express. The remainder of these samples will be retained for a period of sixty (60) days and will then be discarded unless otherwise notified by you. Please call me if you have any questions or require additional information. Thank you for allowing GeoTesting Express the opportunity of providing you with testing of geosynthetics. We look forward to working with you again in the future.

Respectfully yours,



Joe Tomei
Laboratory Manager

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978 635 0266 Fax

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Alpharetta, GA 30022
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GeoTesting express

1145 Massachusetts Avenue
Boxborough, MA 01719
978 635 0424 Tel
978 635 0266 Fax

Geotechnical Test Report

February 15, 2007

GTX-7278
Project No. 064006

Windham, ME

Prepared for:

Oak Engineers

VIL_RESP01818